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Claims

1. A Cartesian loop transmitter (100) comprising a
    forward path (102) and a feedback path (104), each
    of these paths comprising an I-channel and a Q-
    channel, as well as an isolator eliminator (106)
    characterized in that said transmitter (100)
    comprising:
    a) a first low pass filter (138) and a first band
       pass filter (140) connected to I-channel at LP2;
    b) a second low pass filter (142) and a second band
       pass filter (144) connected to Q-channel at LP2;
    c) a first root mean square detector (146) collecting
       signal from said first low pass filter (138) and
       from said second low pass filter (142);
    d) a second root mean square detector (148)
       collecting signal from said first band pass filter
       (140) and from said second band pass filter (144);
    e) a divider (150) connected to said first and said
       second root mean square detectors (146 and 148);
    f) a comparator (152) connected to said divider
       (150); and to
    g) a microprocessor (154) connected to an input
       attenuators (108) and (110) on said I- and Q-
       channels.

2. The Cartesian loop transmitter (100) of claim 1
    wherein a memory (156) is connected to said
    microprocessor (154).

3. A method of adjusting an output level of a Cartesian
    loop transmitter (100) in a digital radio system,
    the method comprising the steps of:

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    a) applying a factory predefined attenuation setting
    (202) for adjusting said output level if
    attenuation setting for a previous slot is not
    available (200) ; or

5   b) applying said attenuation setting obtained in
    previous (204) slot for adjusting said output
    level in a current slot;

    c) measuring an on-channel baseband signal level
    (206) at LP2;

10   d) measuring a noise level (208) at predefined
    frequency offset at LP2;

    e) calculating a ratio (214) of said noise level to
    said on-channel baseband signal level; and

    f) if said ratio is above a threshold (216):

15   increasing an attenuation setting (218) of an
    input signal;

    g) storing (222) said attenuation setting in a
    memory.

20 4. The method according to claim 3 wherein steps c)
    through g) are repeated in a loop until said ratio
    is below said threshold.

  5. The method according to claim 3 or 4 wherein for
25   determining said ratio a root mean square of said
    on-channel baseband signal level (210) and a root
    mean square of said noise level (212) are taken.

  6. The method according to any one of claims 3 to 5
30   wherein after increasing said attenuation setting a
    delay is applied (220) to execution of software,
    which based on next samples, calculates said ratio
    and increases said attenuation setting.

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7. The method according to any one of claims 3 to 6,
wherein in said step of storing said baseband signal
level and said noise level measured at LP2 are
stored in said memory.

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8. A radio transmitter according to any one of claims 1
to 2 and which is operable to provide communications
in at least TETRA and/or GSM and/or IDEN
communication systems.

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9. A radio communication device incorporating a circuit
according to any one of claims 1 to 2.

10. A radio communication device operating in accordance
15   with a method according to any one of claims 3 to 7.